AMENDMENTS TO THE CLAIMS

Please amend the claims as follows.

1. (Currently Amended) ~~In a directory server, a~~ A system ~~capable of interacting with~~ for filtering a plurality of entries organized in a tree structure of a directory server, ~~each entry having attributes, the attributes comprising real attributes each having a value stored in the entry,~~ the system comprising:

~~a mechanism capable of associating a virtual attribute to an entry subject to a virtual attribute condition being verified, the virtual attribute condition being derived from data located elsewhere in the tree structure; and~~

a resolving function ~~capable of~~ configured to:

~~receiving~~ receive a first filter expression, wherein the first filter expression is based on a virtual attribute, wherein a value of the virtual attribute is computed from a value of a first real attribute, and wherein the first real attribute is an attribute that supports indexing, and ~~the resolving function for~~

convert[[ing]] the first filter expression into ~~one or more~~ a second filter expression[[s]], wherein the second filter expression ~~comprising~~ is based on the first real attribute[[s]], and ~~computed from the first filter expression and from the virtual attribute condition~~

a real filter evaluation function configured to:

receive the second filter expression, and

obtain an entry selected from the plurality of entries organized in the tree structure of the directory server, wherein the entry matches the second filter expression.

2. (Currently Amended) The system of Claim 1, further comprising:

an indexing table[[s]], ~~each indexing table related to a real attribute and~~ comprising:

an ordered list of attribute values, wherein an attribute value selected from the ordered list of attribute values comprises the value of the first real attribute, and

a plurality of ~~with corresponding~~ entry identifiers associated with the ordered list of attribute values, ~~the indexing tables being extendable to those of the real attributes which may be contained in the one or more second filter expressions~~

wherein obtaining the entry comprises obtaining the entry identifier.

3. (Cancelled)

4. (Currently Amended) The system of Claim [[2]] 1, further comprising ~~a filter execution function comprising:~~

~~a real filter evaluation function capable of receiving a real-based filter expression based on a real attribute, for determining a corresponding set of entries;~~

~~a virtual filter evaluation function capable of receiving a virtual-based filter expression based on a virtual attribute, for submitting the virtual-based filter expression to the resolving function as a first filter expression, and for subsequently submitting resulting second filter expressions to the real filter evaluation function; and~~

a discriminator ~~for determining whether a filter expression is a real-based one or a virtual-based one~~ configured to:

obtain the first filter expression,

transmit the first filter expression to the resolving function, based on the fact that the first filter expression is based on the virtual attribute,

obtain a third filter expression, wherein the third filter expression is based on a second real attribute, and

transmit the third filter expression to the real filter evaluation function, based on the fact that the third filter expression is based on the second real attribute.

5. (Currently Amended) The system of Claim [[4]] 1, further comprising:

wherein the real a filter evaluation execution function is arranged configured to determine the set of entries from an indexing table for the real attribute, if available whether the entry matches the first filter expression, to obtain a result in accordance with the first filter expression.

6. (Currently Amended) The system of Claim [[4]] 5, further comprising:

a filter manager responsive configured to:

the receipt of obtain a request comprising [[a]] the first filter expression,

the filter manager for call[[ing]] the filter execution function, using the first filter expression, and

evaluating transmit the result in response to the request in the set of entries determined by the filter execution function.

7. (Currently Amended) The system of Claim [[6]] 1, further comprising:

wherein the filter manager has a filter-dividing function capable of splitting an input configured to divide the first filter expression into a plurality of elementary first filter expressions, wherein an elementary first filter expression selected from the plurality of elementary first filter expressions is based on the virtual attribute.

8. (Currently Amended) The system of Claim 7, further comprising:

wherein the filter-dividing function is operable to split a filter expression presented as an input of the a filter execution function into elementary filter expressions for application to the filter execution function, and the filter execution function is arranged configured to combine entries satisfying attribute conditions defined by the plurality of elementary first filter expressions, the respective results in accordance with the combination of the elementary filter expressions in the input first filter expression.

9. (Currently Amended) The system of Claim 7, wherein the filter-dividing function is operable further configured to split divide the second filter expression[[s]] into a plurality of elementary second filter expressions, wherein an elementary second filter expression selected from the plurality of elementary second filter expressions is based on the first real

attribute ~~for application to the real filter evaluation function, and the filter execution function is arranged to combine the respective results in accordance with the combination of the second elementary filter expressions~~.

10. (Currently Amended) The system of Claim 1, wherein the first filter expression comprises an operator ~~intervening~~ <u>defining a relationship</u> between a virtual attribute name and a virtual attribute value.

11. (Currently Amended) The system of Claim 1, wherein the ~~virtual attribute is a role attribute related to~~ <u>plurality of entries comprises</u> a role entry ~~in the tree structure~~ <u>and a user entry,</u> ~~and~~ wherein the ~~virtual attribute condition~~ <u>first filter expression</u> comprises a role membership condition <u>for the user entry, and wherein</u> ~~the resolving function being operable for converting a first expression comprising the virtual role attribute into a second filter expression based on~~ the role membership condition <u>is associated with the role entry</u>.

12. (Currently Amended) The system of Claim 11, ~~in which a~~ <u>wherein the first real attribute comprises a role identifier associated with the role entry, and wherein the</u> user entry [[meets]] <u>satisfies</u> the role membership condition if ~~it has~~ <u>the user entry comprises</u> ~~a real~~ <u>an</u> attribute designating [[a]] <u>the</u> role identifier ~~attached to the role entry~~.

13. (Currently Amended) The system of Claim [[12]] <u>11,</u> ~~in which~~ <u>wherein</u> the role entry ~~contains~~ <u>comprises</u> a plurality of roles, <u>and</u> wherein ~~the resolving function is operable for repetitively receiving a filter expression comprising the role attribute with a value identifying individual ones of such contained~~ <u>the user entry satisfies the role membership condition if the user entry is a member of at least one of the plurality of</u> roles.

14. (Currently Amended) The system of Claim 11, ~~in which a~~ <u>wherein the first real attribute comprises a role filter condition, and wherein the</u> user entry [[meets]] <u>satisfies</u> the role membership condition if [[it]] <u>the user entry</u> ~~meets a~~ <u>satisfies the</u> role filter condition ~~that is attached to the role entry~~.

15. (Cancelled)

16. (Currently Amended) The system of Claim 11, ~~in which~~ wherein the role entry [[has]] is associated with a scope [[in]] of the tree structure, and wherein the ~~virtual attribute~~ role membership condition comprises a scope condition.

17. (Currently Amended) A method for ~~of operating a directory server system that interacts with~~ filtering a plurality of entries organized in a tree structure of a directory server, ~~each entry having attributes, the attributes comprising real attributes and virtual attributes, each real attribute having a value stored in the entry and each virtual attribute being associated to an entry subject to a virtual attribute condition being verified, the virtual attribute condition being derived from data located elsewhere in the tree structure,~~ the method comprising:

      receiving a first filter expression, wherein the first filter expression is based on a virtual attribute, wherein a value of the virtual attribute is computed from a value of a real attribute, and wherein the real attribute is an attribute that supports indexing; [[and]]

      ~~if the first filter expression is based on a virtual attribute,~~ converting the first filter expression into ~~one or more~~ a second filter expression[[s]], wherein the second filter expression ~~comprising~~ is based on the real attribute[[s]]; and

      obtaining an entry selected from the plurality of entries organized in the tree structure of the directory server, wherein the entry matches[[,]] the ~~one or more~~ second filter expression[[s]] ~~being computed from the first filter expression and from the virtual attribute condition~~.

18. (Currently Amended) The method of Claim 17~~, further comprising:~~

      ~~constructing~~ wherein obtaining the entry comprises obtaining an entry identifier selected from a plurality of entry identifiers stored in an indexing table[[s]],

      wherein the plurality of entry identifiers is associated with ~~each related to a real attribute and having~~ an ordered list of attribute values stored in the indexing table, and

      wherein an attribute value associated with the entry identifier comprises the value of the first real attribute ~~with corresponding entry identifiers, the indexing tables being extendable to those of the real attributes which may be contained in the second filter expressions~~.

19. (Currently Amended) The method of Claim [[18]] 17, further comprising:

determining whether the entry matches the first filter expression, to obtain a result in accordance with [[if]] the first filter expression is based on a real attribute, determining a corresponding set of entries from an indexing table for the real attribute.

20. (Currently Amended) The method of Claim 17, further comprising: wherein converting the first filter expression to the second filter expression is performed based on determining whether the fact that the first filter expression is based on [[a]] the virtual attribute or on a real attribute.

21. (Currently Amended) The method of Claim 17, further comprising:

dividing the first filter expression into a plurality of elementary first filter expressions, wherein an elementary first filter expression selected from the plurality of elementary first filter expressions is based on the virtual attribute; and

determining a first set of entries for the elementary first filter expressions; and

combining the first set of entries satisfying attribute conditions defined by the plurality of elementary first filter expressions, in accordance with according to the first filter expression.

22. (Currently Amended) The method of Claim 17, further comprising:

converting the first filter expression into a second filter expression based on real attributes;

dividing the second filter expression into a plurality of elementary second filter expressions, wherein an elementary second element filter selected from the plurality of elementary second filters is based on the real attribute; and

determining a second set of entries for the elementary second filter expressions; and

combining the second set of entries satisfying attribute conditions defined by the plurality of elementary second filter expressions, in accordance with according to the second filter expression.

23. (Currently Amended) The method of Claim 17, wherein the ~~virtual attribute is a role attribute related to~~ plurality of entries comprises a role entry ~~in the tree structure~~ and a user entry, wherein the ~~virtual attribute condition~~ first filter expression comprises a role membership condition for the user entry, ~~the resolving function being operable for converting a first expression comprising the virtual role attribute into a second filter expression based on~~ and wherein the role membership condition is associated with the role entry.

24-29. (Cancelled)

30. (New) The method of Claim 17, further comprising:

determining whether the entry satisfies the virtual attribute condition to obtain a result in accordance with the first filter expression.

31. (New) A computer-usable medium comprising program code embodied therein for filtering a plurality of entries organized in a tree structure of a directory server by:

receiving a first filter expression, wherein the first filter expression is based on a virtual attribute, wherein a value of the virtual attribute is computed from a value of a real attribute, and wherein the real attribute is an attribute that supports indexing;

converting the first filter expression into a second filter expression, wherein the second filter expression is based on the real attribute; and

obtaining an entry selected from the plurality of entries organized in the tree structure of the directory server, wherein the entry matches the second filter expression.

32. (New) The computer-usable medium of Claim 31, wherein obtaining the entry comprises obtaining an entry identifier selected from a plurality of entry identifiers stored in an indexing table, wherein the plurality of entry identifiers is associated with an ordered list of attribute values stored in the indexing table, and wherein an attribute value associated with the entry identifier comprises the value of the first real attribute.

33. (New) The computer-usable medium of Claim 31, further comprising program code embodied therein for filtering the plurality of entries by:

    determining whether the entry matches the first filter expression to obtain a result in accordance with the first filter expression.

34. (New) The computer-usable medium of Claim 31, wherein converting the first filter expression to the second filter expression is performed based on the fact that the first filter expression is based on the virtual attribute.

35. (New) The computer-usable medium of Claim 31, further comprising program code embodied therein for filtering the plurality of entries by:

    dividing the first filter expression into a plurality of elementary first filter expressions, wherein an elementary first filter expression selected from the plurality of elementary first filter expressions is based on the virtual attribute; and

    combining entries satisfying attribute conditions defined by the plurality of elementary first filter expressions, in accordance with the first filter expression.

36. (New) The computer-usable medium of Claim 31, further comprising program code embodied therein for filtering the plurality of entries by:

    dividing the second filter expression into a plurality of elementary second filter expressions, wherein an elementary second element filter selected from the plurality of elementary second filters is based on the real attribute; and

    combining entries satisfying attribute conditions defined by the plurality of elementary second filter expressions, in accordance with the second filter expression.

37. (New) The computer-usable medium of Claim 31, wherein the plurality of entries comprises a role entry and a user entry, wherein the first filter expression comprises a role membership condition for the user entry, and wherein the role membership condition is associated with the role entry.

38. (New) The computer-usable medium of Claim 31, further comprising program code embodied therein for filtering the plurality of entries by:

determining whether the entry satisfies the virtual attribute condition to obtain a result in accordance with the first filter expression.